PERSOONIA
Published by the Rijksherbarium, Leiden
Volume 1, Part 4, pp. 415–431 (1961)

USNEAE A R. A. MAAS GEESTERANUS IN AFRICA ORIENTALI ET AUSTRALI ANNO 1949 COLLECTAE

Józef Motyka
Lublin, Polonia

Enumeratio Usnearum in Africa orientali et australi collectarum datur. Tres species novae, *Usnea aristata*, *U. asteriza*, *U. coniungens* describentur, et tres varietates novae, *Usnea asteriza* var. *incolorata*, var. *trachyna*, *U. vesiculata* var. *venulosa*.
Usnea pulvinata var. *transvaalensis* combinatio nova proponitur.

Cl. D. Dr. R. A. Maas Geesteranus, Leiden, collectionem pulchram plantarum e Lichenum genere *Usnea*, in Kenya et in Africa australi collectam, benevolentissime mihi communicavit; pro communicatione eius collectionis meas gratias exprimere sit mihi permissum. In hac collectione plantas bene notas ex Africa australi inveni, quarum novae stationes de earum distributione docent. Quae sunt cum plantis nobis notis exacte identicae. Evidenter species generis *Usnea* in Africa australi paulo sunt variabiles.

Plantae in Kenya collectae nonnullae ad species iam descriptas pertinent, pro parte vero non erant adhuc notae. Tres species novas et nonnullas varietates decribere necesse erat. Typi novorum taxonum in "Rijksherbarium", Leiden, syntypi in herbario nostro asservantur.

Plures species generis *Usnea* in Africa centrali et orientali evidenter tantum in montibus altissimis, in silvis montanis tropicis vel subtropicis vigent. Sat bene haec in Kilimandjaro, Ruwenzori, in territorio Virunga, minus bene in montibus aliis exploratae sunt. Quarum omnes in typis et numerosis aliis speciminibus nobis notae sunt. In Kenya plantae paucae adhuc collectae erant, qua re collectio nunc elaborata nostram cognitionem specierum generis *Usnea* in Africa orientali amplificat.

Plures species generis *Usnea* in pluribus montibus altissimis Africae centralis inventae sunt, nonnullae tantum in singulis territoriis. Memorabile fere omnes species late distributae non sunt exacte in singulis territoriis identicae, etsi ad easdem species pertinent. Evidenter varietates vel formae in singulis territoriis formantur, adeo vero subtiles, ut tantum in comparatione ipsarum plantarum dignotae esse possunt. Quarum distinctiores descriptae sunt, aliae tantum ut typicae—id est cum typis identicae—,vel a typo differentes commemoratae sunt.

Subgenus Eumitria (Stirt.) Mot.

Eumitria Stirt. *in* Scot. Nat. **6**: 100. 1881. — *Usnea* subgenus *Eumitria* (Stirt.) Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 49. 1936.

Usnea cristata Mot.

Usnea cristata Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 52. 1936.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11043*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

USNEA IMPLICITA (Stirt.) Zahlbr.

Eumitria implicita Stirt. *in* Scot. Nat. **6**: 100. 1881. — *Usnea implicita* (Stirt.) Zahlbr., Cat. Lich. univ. **6**: 582. 1930.

UNION OF SOUTH AFRICA: Cape Province, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12028*, on branch of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. [*U. rubescens* immixta] (L).

Subgenus EUUSNEA Jatta

Usnea subgenus *Euusnea* Jatta *in* Malpighia **12**: 161. 1898.

Sectio FOVEATAE Mot.

Sectio *Foveatae* Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 72. 1936.

USNEA CORRUGATA Mot.

Usnea corrugata Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 105. 1936.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11049b*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

USNEA LEPROSA Mot.

Usnea leprosa Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 106. 1936.

KENYA: Rift Valley Province, District of Nakuru, Menengai, 7 May 1949, *Maas Geesteranus 4536*, on *Acacia* in open grassy plain, 2000 m alt. (L); between Menengai and Rongai, 8 May 1949, *Maas Geesteranus*, on *Acacia* sp. in open wood, 1800 m alt. [*U. perspinosae*, No. *10285*, admixta]; Trans Nzoia District, Cherangani Mts., 22 May 1949, *Maas Geesteranus 4807*, in densely wooded ravine, shaded, 2500–2700 m alt. (L); Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10953*, *10954* (on *Acacia lahai*), *10979* (on various trees) at edge of forest, exposed, 2300 m alt. (L); District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5' S. 35°27' E., 14 June 1949, *Maas Geesteranus 10996*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. (L); Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11051*, *11064b*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); eodem loco etiam *U. intumescenti*, No. *11049a*, admixta; Tinderet Forest Reserve, 0°6'10" S. 35°22'30" E., 1 July 1949, *Maas Geesteranus 5357*, on *Olea hochstetteri* in dense tall forest, shaded, 2300–2400 m alt. (L); Tinderet Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus 5555*, *5557*, *5559*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [No. *5559* *U. vainioana* immixta] (L); eodem loco etiam *U. aristatae*, No. *5556*, admixta; between Tinderet Forest Reserve and Equator, 0°0'37" N. 35°32' E., 28 July 1949, *Maas Geesteranus 5583*, on isolated *Lasiosiphon glaucus* near edge of bamboo grove, exposed, 3200 m alt. (L).

Species nota e sat numerosis stationibus in tota fere Africa subtropica et tropica locis editioribus, Madagascar et ins. Comoro. Medulla Pd non colorata.

Sectio ARTICULATAE Mot.

Sectio *Articulatae* Mot., Lich. Gen. *Usnea* Stud. mon. 1: 110. 1936.

USNEA PRAELONGA Stirt.

Usnea praelonga Stirt. *in* Scot. Nat. **6**: 107. 1881.

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11921* (on trees in narrow, wooded ravine, sheltered), *11943* (on small tree in remnant of wood on slope), c. 2000 m alt. (L); eodem loco etiam *U. torquescenti*, No. *11942*, tamquam *U. undulatae*, No. *11941*, admixta.

Identica cum typo. Nota adhuc e pluribus stationibus in Africa australi, Erythraea et Somali.

USNEA RUGOSA Mot.

Usnea rugosa Mot., Lich. Gen. *Usnea* Stud. mon. 1: 113. 1936.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10981*, on tree at edge of forest, exposed, 2300 m alt. [*U. decipiens* immixta] (L); District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5′ S. 35°27′ E., 14 June 1949, *Maas Geesteranus 10994*, *10998*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. [No. *10998 U. perspinosa* et *U. flavescens* immixtae] (L); eodem loco etiam *U. flavescenti*, No. *10993*, admixta; Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*U. intumescenti*, No. *11049a*, admixta]; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22′30″ S. 35°43′ E., 25 Aug. 1949, *Maas Geesteranus*, on *Juniperus procera* at edge of tall forest, exposed, 2750 m alt. [*U. flavescenti*, No. *5863*, admixta]; Eastern Mau Forest Reserve, 0°28′ S. 35°45′ E., 31 Aug. 1949, *Maas Geesteranus 11413*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. [*U. flaccida* immixta] (L).

Plantae e Kenya sat distincte recedunt a typo ramis rarius rugulosis, rugulis maioribus, acute prominentibus, in pseudocyphellas transientibus, et sat distincte ad *U. praelongam* accedunt.

Plantae, *U. intumescenti* (No. *11049a*) admixtae, e forma constant recedente a typo ramis fere laevibus, pseudocyphellatis, accedente ad *U. flavescentem*. Plantae Nrs. *11413* magis quam aliae e Kenya typo similes.

USNEA VESICULATA Mot.

Usnea vesiculata Mot., Lich. Gen. *Usnea* Stud. mon. 1: 114. 1936.

Var. **venulosa** Mot., *nova var.*

Habitu typo similis, sed rami imprimis crassiores sat crebre subtiliter acute venulosi, venulis varie percurrentibus, tenuibus, elevatulis, nunc longitudinalibus, nunc obliquis, pro parte paulo elongatis, pro parte fere punctiformibus, nunc thallo concoloribus, nunc paulo pallidioribus. Sterilis. Medulla Pd rubescens.

Typus: *Maas Geesteranus 5559*, pro parte (L).

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°0′30″ N. 35°31′30″ E., 15 July 1949, *Maas Geesteranus 5559* [typus, pro parte, var. *perpendula* et var. *miniata* immixtae], *5562*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. (L).

Var. PERPENDULA Mot.

Usnea vesiculata var. *perpendula* Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 109. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [var. *venulosae*, No. *5559*, admixta].

Plantae identicae cum typo. Collectae unacum var. *venulosa*.

Var. MINIATA Mot.

Usnea vesiculata var. *miniata* Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 109. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [var. *venulosae*, No. *5559*, admixta].

Identica cum typo. Collecta unacum var. *venulosa*.

USNEA FLAVESCENS Mot.

Usnea flavescens Mot., Lich. Gen. *Usnea* Stud. mon. **1**: 125. 1936.

KENYA: Rift Valley Province, Trans Nzoia District, Cherangani Mts., 22 May 1949, *Maas Geesteranus 4808*, densely wooded ravine, 2500–2700 m alt. (L); Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10980*, on trees at edge of forest, exposed, 2300 m alt. [minus evoluta] (L); District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5' S. 35°27' E., 14 June 1949, *Maas Geesteranus 10993*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. [typica; *U. rugosa* immixta] (L); eodem loco etiam *U. os-elephantis* var. *subdecipienti*, No. *10995*, tamquam *U. rugosae*, No. *10998*, admixta; Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11041, 11054, 11059, 11064a*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [No.*11059, 11064a* sat parce evolutae] (L); eodem loco etiam *U. durae*, No. *11047*, tamquam *U. moniliformi*, No. *11038*, admixta; Tinderet Forest Reserve, 0°6'10" S. 35°22'30" E., 1 July 1949, *Maas Geesteranus 11123*, on *Acacia lahai* at edge of forest, somewhat exposed, 2000 m alt. [plantae parce evolutae, sorediosae] (L); Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus 5548* [typica], *5552* [accedens ad *U. rugosam*], *5561*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. (L); eodem loco etiam *U. asterizae*, No. *5553*, tamquam *U. exasperatae*, No. *5551*, admixta; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22'30" S. 35°43' E., 25 Aug. 1949, *Maas Geesteranus 5861a* (mainly on *Juniperus procera*, also on *Dombeya, Ekebergia, Olea chrysophylla*, etc. [planta typica, cum apotheciis]), *5863* [*U. rugosa* immixta], at edge of tall forest, exposed, 2750 m alt. (L); eodem loco etiam *U. vainioanae*, No. *5861b*, admixta; Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 31 Aug. 1949, *Maas Geesteranus 6076, 6077*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. (L); eodem loco etiam *U. aequatorianae*, No. *11414*, admixta.

Sectio SETULOSAE Mot.

Sectio *Setulosae* Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 305. 1937.

USNEA PULVINATA var. **transvaalensis** (Vain.) Mot., *nova comb.*

Usnea transvaalensis Vain. *in* Ann. Univ. åbo. (turku.) (Ser. A) **2** (3): 1. 1926 (basionym).

UNION OF SOUTH AFRICA: Orange Free State, 5 miles west of Ladybrand, 18 Nov. 1949, *Maas Geesteranus 6526*, on vertical face of sandstone outcrop, exposed to S, c. 2000 m alt. (L); Cape Province, Franschhoekpas between Franschhoek and Villiersdorp, 27 Nov. 1949, *Maas Geesteranus 6583*, on vertical sides of boulders in stream in wooded ravine, 600–900 m alt. (L).

Plantae ex Africa australi quam typus distincte semper maiores sunt et pro varietate distinguendae.

USNEA MYRIOCLADA (Müll. Arg.) Zahlbr.

Usnea barbata var. *myrioclada* Müll. Arg. *in* Bot. Jb. **20**: 244. 1894. — *Usnea myrioclada* (Müll. Arg.) Zahlbr., Cat. Lich. univ. **6**: 558. 1930.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6691, 6693*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. (L).

USNEA ERUBESCENS (Stein apud H. Meyer) Mot.

Usnea articulata f. *erubescens* Stein *apud* H. Meyer, Ost-afrik. Gletscherfahrt. 314. 1890. — *Usnea erubescens* (Stein apud H. Meyer) Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 333. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 13034*, on low tree at edge of forest, exposed, 2420 m alt. (L).

USNEA SPILOTA Stirt.

Usnea spilota Stirt. *in* Scot. Nat. **6**: 294. 1882.

UNION OF SOUTH AFRICA: Cape Province, Tzitzikama Mts., Plaat Forest near Storms River, 3 Dec. 1949, *Maas Geesteranus 12103*, on tree at edge of clearing in tall forest, c. 200 m alt. (L).

Plantae sat distincte accedentes ad *U. rubescentem*, subarticulatae.

USNEA HORRIDULA (Müll. Arg.) Mot.

Usnea longissima var. *horridula* Müll. Arg. *in* Flora **74**: 372. 1891. — *Usnea horridula* (Müll. Arg.) Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 334. 1937.

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11940*, on small tree in remnant of wood on slope, c. 2000 m alt. (L); eodem loco etiam *U. undulatae*, No. *11941*, admixta.

USNEA MACULATA Stirt.

Usnea maculata Stirt. *in* Scot. Nat. **6**: 293. 1882.

UNION OF SOUTH AFRICA: Cape Province, Franschhoekpas between Franschhoek and Villiersdorp, 27 Nov. 1949, *Maas Geesteranus 6582*, on vertical face of rock in stream in wooded ravine, 600–900 m alt. [exacte typica] (L); Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus 12007*, on spiny twigs of trees at edge of wood near lake, exposed, c. sea level [*U. undulata* immixta] (L).

Plantae parce evolutae, typicae.

USNEA RUBESCENS Stirt.

Usnea rubescens Stirt. *in* Scot. Nat. 7: 76. 1883.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 13504*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [juvenilis] (L).

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus 12004*, *12006*, on spiny twigs of trees at edge of wood near lake, exposed, c. sea-level (L); Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus*, on branch of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. [*U. implicitae*, No. *12028*, admixta]; Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6688*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. [plantae exacte typicae et bene evolutae] (L); eodem loco etiam *U. torquescenti*, No. *6695*, tamquam *U. luteolae*, No. *6696*, admixta.

USNEA DURA Mot.

Usnea dura Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) 11: 116. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10956*, *10957*, *10958* (on *Acacia lahai*), *10983* (on tree), at edge of forest, exposed, 2300 m alt. (L); Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 11047* [*U. flavescens* immixta], *11060* [*U. os-elephantis* juvenilis immixta], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of wood, exposed, 2420 m alt. (L); eodem loco etiam *U. flavescenti*, No. *11059*, admixta; Kericho District, South Western Mau Forest Reserve, 0°36′30″ S. 35°18′20″ E., 13 Aug. 1949, *Maas Geesteranus 11283*, on tree at edge of forest bordering Itare River, somewhat shaded, 1920 m alt. (L).

Plantae e Kenya sat distincte recedunt a typo in Virunga collecto thallo minus duro, cortice tenuiore, soraliis minus crebris, ad partes adapicales ramorum tantum sitis. Thallus et medulla Pd lutescentes.

Possibiliter var. propria, sed plantae nimium parce collectae ad varietatem describiendam.

USNEA DICHROA Mot.

Usnea dichroa Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) 11: 118. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, between Tinderet Forest Reserve and Equator, 0°0′37″ N. 35°22′ E., 28 July 1949, *Maas Geesteranus 5584*, on isolated *Lasiosiphon glaucus* near edge of bamboo grove, exposed, 3200 m alt. (L); eodem loco etiam *U. perspinosae*, No. *11201*, admixta.

Var. SPINULOSA Mot.

Usnea dichroa var. *spinulosa* Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) 11: 120. 1959.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus 12005*, on spiny twigs of tree at edge of wood near lake, exposed, c. sea-level (L).

Plantae intense rubricosae, habitu similes *U. subfloridae*. Structura anatomica sicut in typo.

Sectio ELONGATAE Mot.

Sectio *Elongatae* Mot., Lich. Gen. *Usnea* Stud. mon. 2: 352. 1937.

USNEA DISTENSA Stirt.

Usnea distensa Stirt. *in* Scot. Nat. **6**: 104. 1882.

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11939*, on small tree in remnant of a wood on slope, c. 2000 m alt. [exacte typica] (L); Cape Province, Knysna District, Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 12224*, on *Podocarpus falcatus* in clearing in tall forest, c. 500 m alt. (L).

USNEA PROMONTORII Mot.

Usnea promontorii Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 386. 1937.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12023, 12024* [*U. trichodeoides* immixta], *12025, 13035* [*U. trichodeoides* immixta], on branches of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. (L); Tzitzikama Mts., Plaat Forest near Storms River, 3 Dec. 1949, *Maas Geesteranus 12104*, on tree at edge of clearing in tall forest, c. 200 m alt. (L); Knysna District Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6689, 6690, 6699* (all on *Ocotea bullata*), *12223* (on *Podocarpus falcatus*), in clearing in tall forest, c. 500 m alt. (L).

USNEA LYNGEI Mot.

Usnea lyngei Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 411. 1937.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus 12009*, on tree at edge of wood near lake, exposed, c. sea-level (L).

USNEA LIVIDA Mot.

Usnea livida Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 419. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11037*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*U. vainioana* immixta] (L); Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus 5554*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. (L).

Nota erat adhuc tantum e Cameroon.

USNEA TRICHODEOIDES Vain. em. Mot.

Usnea trichodeoides Vain. *in* Ann. Acad. Sci. fenn. (Ser. A) No. 7: 7. 1915; em. Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 421. 1937.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12026* [planta exacte typica; *U. indigena* immixta], *13036*, on branches of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. (L); eodem loco etiam *U. indigenae*, No. *12027b*, *U. os-elephantis*, No. *12021*, tamquam *U. promontorii*, No. *12024, 13035*, admixta; Tzitzikama Mts., Plaat Forest near Storms River, 3 Dec. 1949, *Maas Geesteranus 12106*, on branches of tree at edge of clearing in tall forest, c. 200 m alt. [planta exacte typica] (L).

USNEA INDIGENA Mot.

Usnea indigena Mot. *in* Fragm. flor. geobot. **1** (2): 27. 1954.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12022, 12027b* [*U. trichodeoides* immixta], on branches of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. (L); eodem loco etiam *U. trichodeoidei*, No. *12026*, admixta.

USNEA EBURNEA Mot.

Usnea eburnea Mot. *in* Fragm. flor. geobot. **1** (2): 29. 1954.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12027a*, on branches of *Podocarpus* at edge of clearing in tall forest, sheltered, c. 500 m alt. (L); Tzitzikama Mts., Plaat Forest near Storms River, 3 Dec. 1949, *Maas Geesteranus 12105*, on tree at edge of clearing in tall forest, c. 200 m alt. (L).

USNEA OS-ELEPHANTIS Mot.

Usnea os-elephantis Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 130. 1959.

Plantae e Kenya sat distincte a typo in Virunga collecto colore fusco, ramis plerumque sat crebre annulato-fractis recedunt. Sunt fere intermediae cum *U. aequatoriana*, *U. flaccida*, nonnullae cum *U. exasperata*, tamen varietates similes ut in Virunga formant. Ulterius tractandae, sinon melius pro specie autonoma separandae.

Var. OS-ELEPHANTIS

Usnea os-elephantis var. *os-elephantis*; Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 131. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus*, on tree at edge of forest, exposed, 2300 m alt. [*U. durae*, No. *10983*, admixta]; Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11039, 11046a, 13040, 13503*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); eodem loco etiam *U. durae*, No. *11060*, admixta; Tinderet Forest Reserve, 0°6'10" S. 35°22'30" E., 1 July 1949, *Maas Geesteranus 11102* (in dense, tall forest, 2300–2400 m alt.), *11126* (on *Acacia lahai* at edge of forest, 2000 m alt.) (L); Kericho District, South Western Mau Forest Reserve, 0°36'30" S. 35°18'20" E., 13 Aug. 1949, *Maas Geesteranus*, on tree at edge of forest bordering Itare River, somewhat shaded, 1920 m alt. [*U. intumescenti*, No. *11282*, admixta]; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22'30" S. 35°43' E., 25 Aug. 1949, *Maas Geesteranus 5864*, on *Juniperus procera* at edge of forest, exposed, 2750 m alt. [*U. flaccida* immixta] (L).
UNION OF SOUTH AFRICA: Cape Province, Knysna District, Knysna, Garden of Eden, 2 Dec. 1949, *Maas Geesteranus 12021*, on branches of *Podocarpus* in clearing in tall forest, sheltered, c. 500 m alt. [*U. trichodeoides* immixta] (L).

Plantae e Kenya sub No. *11039* fere typicae, habitu cum typo bene congruentes sed fusco coloratae. Pars plantarum ad *U. flaccidam* accedit. No. *11046a* sat distincte ad *U. aequatorianam* accedit, forma transitoria ad *U. flaccidam*.

Var. SUBDECIPIENS Mot.

Usnea os-elephantis var. *subdecipiens* Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 132. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10982*, on *Acacia lahai* at edge of forest, exposed, 2300 m alt. (L); Tinderet

Forest Reserve, 0°5′ S. 35°27′ E., 14 June 1949, *Maas Geesteranus 10995*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. [*U. flavescens* immixta]; Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*No. 11052*, *U. asterizae* var. *trachynae* admixta] (L); eodem loco etiam *U. flavescenti*, No. *11059*, admixta; Tinderet Forest Reserve, 0°6′10″ S. 35°22′30″ E., 1 July 1949, *Maas Geesteranus 11122*, on *Acacia lahai* at edge of forest, 2000 m alt. (L); Tinderet Forest Reserve, 0°0′30″ N. 35°31′30″ E., 15 July 1949, *Maas Geesteranus 5560*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. (L).

Plantae sat distincte recedentes a typo, medulla Pd non colorata, ramis sat tenuibus, acute angulatis. Verosimiliter varietas propria.

Var. TENERA Mot.

Usnea os-elephantis var. *tenera* Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 134. 1959.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 11048*, *11063*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

Sectio STRAMINEAE Mot.

Sectio *Stramineae* Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 432. 1937.

USNEA DELICATA Vain.

Usnea delicata Vain. *in* Ann. Univ. åbo. (turku.) (Ser. A) **2** (3): 1. 1926.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus*, on twigs of tree at edge of wood near lake, exposed, c. sea-level [*U. undulatae*, No. *12015*, admixta]; Tzitzikama Mts., Plaat Forest near Storms River, 3 Dec. 1949, *Maas Geesteranus 12102*, on tree at edge of clearing in tall forest, c. 200 m alt. (L).

USNEA VAINIOANA Zahlbr.

Usnea vainioana Zahlbr., Cat. Lich. univ. **6**: 597. 1930.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5′ S. 35°27′ E., 14 June 1949, *Maas Geesteranus 10997*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. (L); Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*U. lividae*, No. *11037*, admixta]; Tinderet Forest Reserve, 0°0′30″ N. 35°31′30″ E., 15 July 1949, *Maas Geesteranus*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [*U. vesiculatae* var. *venulosae*, No. *5559*, admixta]; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22′30″ S. 35°43′ E., 25 Aug. 1949, *Maas Geesteranus 5861b* [*U. flavescens* immixta] (also on *Dombeya*, *Ekebergia*, *Olea chrysophylla*, etc.), *5865*, on *Juniperus procera* at edge of tall forest, exposed, 2750 m alt. (L); Eastern Mau Forest Reserve, 0°28′ S. 35°45′ E., 2 Sept. 1949, *Maas Geesteranus 6063*, on tree at edge of forest near Songai River, exposed, 2650 m alt. [cum apotheciis] (L).

USNEA EXASPERATA (Müll. Arg.) Mot.

Usnea dasypogoides var. *exasperata* Müll. Arg. *in* Flora **73**: 336. 1890. — *Usnea exasperata* (Müll. Arg.) Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 440. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11057a*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L) eodem loco etiam *U. flavescenti*, No. *11059*, admixta; Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus 5550, 5551* [*U. flavescens* immixta], on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. (L).

USNEA MONILIFORMIS Mot.

Usnea moniliformis Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 447. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11038* [*U. flaccida* et *U. flavescens* immixtae], *11056, 11057b*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); eodem loco etiam *U. aequatorianae*, No. *11061*, *U. flaccidae*, No. *11062*, tamquam *U. asterizae* var. *trachynae*, No. *11052*, admixta; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22'30" S. 35°43' E., 25 Aug. 1949, *Maas Geesteranus 5862*, on tree at edge of tall forest, exposed, 2750 m alt. [accedit ad *U. fuscam*] (L).
UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11920*, on tree in narrow wooded ravine, sheltered, c. 2000 m alt. [forma ramulis teretibus] (L).

USNEA FLACCIDA (Müll. Arg.) Mot.

Usnea angulata var. *flaccida* Müll. Arg. *in* Flora **71**: 357. 1890. — *Usnea flaccida* (Müll. Arg.) Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 475. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11045, 11062* [*U. moniliformis* immixta], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); eodem loco etiam *U. moniliformi*, No. *11038*, admixta; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22'30" S. 35°43' E., 25 Aug. 1949, *Maas Geesteranus 5860b*, on *Juniperus procera* at edge of tall forest, exposed, 2750 m alt. (L); eodem loco etiam *U. os-elephantis*, No. *5864*, admixta; Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 31 Aug. 1949, *Maas Geesteranus*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. [*U. rugosae*, No. *11413*, admixta].

USNEA AEQUATORIANA Mot.

Usnea aequatoriana Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 476. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10955* (on *Acacia lahai*), *10985* [*U. undulata* immixta] (on tree) at edge of forest, exposed, 2300 m alt. (L); Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11046b, 11053a, 11061* [*U. moniliformis* immixta], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); Tinderet Forest Reserve, 0°6'10" S. 35°22'30" E., 1 July 1949, *Maas Geesteranus 11121, 11127*, on *Acacia lahai* at edge of forest, somewhat exposed, 2000 m alt. (L); Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [typica, sterilis; *U. intumescenti*, No. *5558*, admixta]; Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 31 Aug. 1949, *Maas Geesteranus 11414*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. [typica, sterilis; *U. flavescens* immixta] (L); eodem loco etiam *U. flavescenti*, No. *6077*, admixta.

Plantae e No. *11053a* parce ramulosae vel fere subnudae, crebre annulato-fractae, annulis minus distincte angulatis, pro parte fere teretibus, sat distincte accedentes ad *U. moniliformem.*

USNEA DECIPIENS Mot.

Usnea decipiens Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 477. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus*, on tree at edge of forest, exposed, 2300 m alt. [*U. rugosae*, No. *10981*, admixta]; Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11055*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 31 Aug. 1949, *Maas Geesteranus 11412*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. [plantae fere sine ramulis lateralibus] (L).

Plantae e Kenya sat distincte recedunt a typo thallo distinctius articulato, articulis inflatulis, ramulis lateralibus raris, in nonnullis plantis fere vacantibus.

USNEA TORQUESCENS Stirt.

Usnea torquescens Stirt. *in* Trans. Proc. New Z. Inst. **30**: 391. (1897) 1898.

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11942*, on small tree in remnant of a wood on slope, c. 2000 m alt. [*U. praelonga* immixta] (L); Cape Province, Knysna District, Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6695*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. [*U. rubescens* immixta] (L).

Usnea asteriza Mot., *nova spec.*

Thallus elongatus, adultus 100 cm vel ultra longus, flaccide pendulus, parte basali indistincta, leviter obscurata affixus, sat pallide fuscus, opacus, totus concolor, minus crebre, subdichotome vel saepius submonopodialiter ramosus, vulgo post ramificationem uno ramo firmiore et longiore, altero debiliore et breviore, ad basin arcuato deflexo, angulis inter ramos latis, rectis, subrectis vel perviis. Rami crassiores leviter longe flexuosi, tenuiores flaccide penduli, omnes sat uniformes, primarii ca. 2 mm vel paulo ultra crassi, longe crassitudine aequales, parte adapicali sensim attenuati, ultimi crasse capillacei, omnes distinctissime angulati, in sectu fere astericiformes, angulis prominentibus, dorso acutis et saepius serratis, ibique cortice tectis et non fractis neque dilaceratis, tantum hinc illinc pallidioribus et subecorticatis, lateribus inter angulos nunc sulcatis, nunc fere planis, nunc sulcatis sed media parte convexulis, laevibus, glabris, tantum passim levissime inaequalibus, nitiduli, sat crebre annulato- vel subarticulato-fracti, fracturis nunc transversalibus, nunc obliquis, simplicibus, leviter limbatis, articulis non inflatis, contiguis vel sat disiunctis et tum fere semper regeneratis, maiores annulis deformibus, pallidioribus vel albidis, cortice regenerativa obtectis notati, ramulis lateralibus longioribus et brevioribus intermixtis, plerumque 0,5–1 cm longis, sed nonnullis longioribus vel brevioribus, perpendicularibus et strictis vel arcuato-flexuosis, vulgo simplicibus, sed maioribus iteratim ramosis, teretiusculis, sat crebre annulato-fractis, nonnullis maculis albidis notatis, maximis apothecia producentibus muniti. Summitates ramorum a ramis crassioribus fere non diversae.

Apothecia sat frequentia, ad ramos laterales lateraliter vel subterminaliter sita, 1–2 cm lata. Excipulum firmum, protinus convexum et laeve, postea distincte foveolatum rugisque sat acutis percussum, fere planum, ramulo firmo et longo,

vulgo ramuloso ex excipulo excrescente. Cilia e margine apotheciorum et e parte marginali excipuli excrescentia, vulgo numerosa, maiuscula, minora et minuta intermixta, maiora sat crebre annulata. Discus protinus concavus, postea fere planus, pallidus, sat distincte albo-pruinosus. Hypothecium ca. 35 μ crassum, fere pellucidum. Hymenium ca. 50 μ altum. Epithecium ca. 17 μ crassum, fuligineum. Asci clavati, ca. 50 × 20 μ. Sporae ca. 8 × 5 μ.

Structura anatomica. — Cortex ca. 130 μ crassus, extus stratu ca. 30 μ crasso sordide viridulus, intus pellucidus, versus medullam paulo inaequalis, paraplectenchymaticus, parte externa ex hyphis ad superficiem thalli fere perpendicularibus, valde conglutinatus, ex hyphis ca. 7 μ crassis contextus. Medulla 350–420 μ crassa, crebra, ex hyphis 7–15 μ crassis, strictis, pachydermaticis, dense tuberculatis contexta. Axis cylindricus, solidus, ca. 420 μ crassus, ex hyphis 3,5–7 μ crassis, sat leptodermaticis constructus, lumine cellularum sat lato.

Reactiones chimicae. — Medulla Pd rubescit vel non coloratur, K –.

Typus: *Maas Geesteranus 5860* (L).

Species distincta, insignis imprimis ramis valde distincte angulatis. Habitu externo maxime similis *U. alatae* ex America meridionali. *U. decipiens* est multo brevior, ramis potius sulcatis quam angulatis. *U. flaccida* differt ab *U. asteriza* thallo multo teneriore et tenuiter papillato-scabrido. In *U. goniodes* thallus est brevior, viridulus, opacus. *U. os-elephantis* diversa est ramis tantum crassioribus initiis angulorum notatis. *U. africana* et *U. gigas* colore viridulo, forma ramulorum et structura anatomica valde diversae sunt.

Species paulo variabilis, sed duo varietates distinctae notae sunt. In var. *asteriza* plantae sunt sat distincte diversae, quod tamen e modo crescendi evadit. Nonnullae plantae validae sunt, ramis primariis crassis et minus crebre ramulosis, apothecia numerosa et maiuscula producentes; haec verosimiliter e sporis natae sunt. Plantae aliae sunt tenuiores, crebre ramulosae, minus distincte, vel potius minus prominenter angulatae, crebrius ramulosae, plerumque tenuiores; haec sunt fere sine dubio plantae regenerative crescentes ex partis deruptis et per ramos arborum pendulae, porro crescentes, sine parte basali.

Var. **asteriza**

Ramuli laterales laeves, etuberculati, vulgo esorediosi. Plantae fere semper cum apotheciis. Medulla Pd rubescens.

Varietas typica speciei.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°0'30" N. 35°31'30" E., 15 July 1949, *Maas Geesteranus 5553*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [*U. flavescens* immixta] (L); Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°22'30" S. 35°43' E., 25 Aug. 1949, *Maas Geesteranus 5860* [typus], on *Juniperus procera* at edge of tall forest, exposed, 2750 m alt. (L); Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 31 Aug. 1949, *Maas Geesteranus 11415, 11416*, on wood of dead *Juniperus procera* at edge of forest near Songai River, 2650 m alt. (L).

Var. **incolorata** Mot., *nova var.*

Medulla Pd non tincta. Ceterum a var. *asteriza* non diversa.

Typus: *Maas Geesteranus 11040* (L).

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11040* [typus], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

Var. **trachyna** Mot., *nova var.*

Ramuli laterales crebri, breves, tuberculati, tuberculis prominentibus, albis, sorediosis. Soredia isidiosa, tenuia, in nidulis astericiformibus sita. Apothecia sat rara, sicut in var. *asteriza*. Medulla Pd non tincta.

Typus: *Maas Geesteranus 11052*, pro parte.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11052* [typus, pro parte; *U. os-elephantis* var. *subdecipiens* et *U. moniliformis* immixtae], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

Usnea coniungens Mot., *nova spec.*

Thallus pendulus, ca. 12 cm longus, sat late divergenter expansus, fere totus uniformiter stramineo-fuscus, ad ramos tantum tenuiores paulo pallidior, nitidulo-opacus, sat mollis, basi brevi, distincte constricta, angustissime obscurata et saepius basibus secundariis substratu affixus, in tota longitudine sat parce submonopodialiter et subdichotome ramosus, ramificatione plerumque irregulari, uno ramo post ramificationem plerumque validiore, altero debiliore, nunc elongato et pendulo, nunc brevi et patente, angulis inter ramos fere semper latis, rectis vel subrectis. Rami prope basin 2–3 mm crassi, mox supra basin attenuati et ad apices fere capillacei, teretes, inflati apparentes, crassissimi saepius sat profunde irregulariter foveolati, ad basin semper, alibi rare sed typice articulati, articulis ad ramos crassiores apicibus constrictis, ad tenuiores fere cylindricis, ad fracturas albo-limbati, laeves, epapillati, glabri, hinc illinc pseudocyphellis distinctis, nunc deformibus et maculiformibus, nunc distincte elevatis, dorsis acutis et albidis, nunc punctiformibus notati, locis nonnullis vero ecyphellati, ramulis lateralibus variae longitudinis et formae, nunc elongatis, pendulis, fere simplicibus et tum plerumque rarioribus, nunc brevibus, fere perpendicularibus, saepius iteratim ramosis, graciose vel spiratim flexuosis, vulgo crebre dispositis, sat distincte articulato-affixis, longe acute terminatis, subtiliter tuberculatis muniti. Summitates varie formatae, nunc sat longe capillaceae et fere nudae, nunc sat breves et crassae, ramulis lateralibus provisae.

Apothecia ignota.

Soredia isidiosa, minute spinuliformia, ad ramulos laterales in nidulis parvis vel simpliciter ad tubercula minuta, leviter elevata, post defectionem sorediorum farinosa, sat lata sita.

Structura anatomica. — Cortex 60–95 μ crassus, stratu externo ca. 15 μ crasso luteolus, intus pellucidus, paraplectenchymaticus, valde conglutinatus, ex hyphis ca. 15 μ crassis, lumine cellularum angusto contextus. Medulla ca. 250 μ crassa, sat crebra, ex hyphis ca. 5 μ crassis, laevibus, flexuosis contexta. Axis ca. 380 μ crassus, teres, solidus, ex hyphis maxime conglutinatis, ca. 7,5 μ crassis constructus.

Reactiones chimicae. — Thallus et medulla K –, Pd in typo non colorat, in syntypo - cum typo morphologice identico - medulla Pd lutescit et stratu externo rubescit.

Typus: *Maas Geesteranus 11044* (L).

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 11044* [typus], *13038*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).

Species insignis, sectiones *Articulatae*, *Stramineae* et *Glabratae* distincte iungens. Plantae iuniores fruticulosae sunt, divergenter ramosae, similes maiusculae *U. glabratae* vel *U. ruwenzorianae*, adultae pendulae, elongatae, sat similes *U. flavescenti*, sed ramulis lateralibus munitae sicut in pluribus speciebus e sectione *Stramineae*. Etiam pluribus speciebus e sectione *Cladocarpae* non dissimilis. Proxima videtur *U. flavescenti* imprimis habitu, pseudocyphellis, articulatione, diversa ab ea ramulis lateralibus numerosis, thallo breviore et magis inflato.

Species nota adhuc tantum e paucis speciminibus e Kenya.

Sectio GLABRATAE Mot.

Sectio *Glabratae* Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 483. 1937.

USNEA STRIGOSELLA Steiner

Usnea strigosella Steiner *in* Bull. Herb. Boissier, ser. 2, **7**: 637. 1907.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10984*, on tree at edge of forest, exposed, 2300 m alt. [*U. subleprosa* immixta] (L); Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*U. leprosae*, No. *11051*, admixta]; Tinderet Forest Reserve, 0°6'10" S. 35°22'30" E., 1 July 1949, *Maas Geesteranus 11124*, *11125*, on *Acacia lahai* at edge of forest, somewhat exposed, 2000 m alt. (L).

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6692* [*U. undulata* immixta], *12155*, *12157*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. (L).

USNEA UNDULATA Stirt.

Usnea undulata Stirt. *in* Scot. Nat. **6**: 104. 1881.

KENYA: Nyanza Province, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus*, on tree at edge of forest, exposed, 2300 m alt. [*U. aequatorianae*, No. *10985*, admixta].

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11941*, on small tree in remnant of wood on slope, c. 2000 m alt. [*U. horridula*, *U. praelonga*, et *U. subleprosa* immixtae] (L); Cape Province, Knysna District, Ruigtevlei between George and Knysna, 1 Dec. 1949, *Maas Geesteranus 12008*, *12011*, *12012*, *12013*, *12014*, *12015* [*U. delicata* immixta], *12016*, *12017*, on trees at edge of wood near lake, exposed, c. sea-level (L); eodem loco etiam *U. maculatae*, No. *12007*, admixta; Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6698*, *12156*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. (L); eodem loco etiam *U. strigosellae* No. *6692* admixta.

Specimina cum typo exacte identica.

USNEA PERSPINOSA Mot.

Usnea perspinosa Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 533. 1937.

KENYA: Rift Valley Province, Nakuru District, between Menengai and Rongai, 8 May 1949, *Maas Geesteranus 10285*, on *Acacia* sp. in open wood, 1800 m alt. [*U. leprosa* immixta] (L); Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5' S. 35°27' E., 14 June 1949, *Maas Geesteranus 10999*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. (L); eodem loco etiam *U. rugosae*, No. *10998*,

admixta; between Tinderet Forest Reserve and Equator, 0°0'37" N. 35°32' E., 28 July 1949, *Maas Geesteranus 11201*, on isolated *Lasiosiphon glaucus* near edge of bamboo grove, exposed, 3200 m alt. [*U. dichroa* immixta] (L).

USNEA SIMPLICISSIMA Mot.

Usnea simplicissima Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 538. 1937.

KENYA: Nyanza Province, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6'30" S. 35°29' E., 20 June 1949, *Maas Geesteranus 13039*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 2 Sept. 1949, *Maas Geesteranus 6064*, on tree at edge of forest near Songai River, exposed, 2650 m alt. (L).

USNEA SUBMOLLIS Steiner

Usnea submollis Steiner *in* Verh. zool.-bot. Ges. Wien **53**: 229. 1903.

KENYA: Rift Valley Province, Nakuru District, Eastern Mau Forest Reserve, 0°28' S. 35°45' E., 2 Sept. 1949, *Maas Geesteranus 6065*, on tree at edge of forest near Songai River, exposed, 2650 m alt. (L).

USNEA MOLLIUSCULA Stirt.

Usnea molliuscula Stirt. *in* Scot. Nat. **7**: 77. 1883.

UNION OF SOUTH AFRICA: Transvaal, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus 11922*, on tree in narrow wooded ravine, sheltered, c. 2000 m alt. (L).

USNEA CHRYSOLEUCA Mot.

Usnea chrysoleuca Mot. *in* Fragm. flor. geobot. **1** (2): 31. 1954.

UNION OF SOUTH AFRICA: Cape Province, Franschhoekpas between Franschhoek and Villiersdorp, 27 Nov. 1949, *Maas Geesteranus 6584, 11979*, on vertical sides of boulders in stream in wooded ravine, 600–900 m alt. (L).

Plantae cum typo habitu et structura, superficie et colore fere identicae, diversae vero soraliis farinosis, parte adapicali ramorum in soraliis minutis sitis. Nonnullae plantae sunt fere eramulosae, aliae ramulis lateralibus crebre munitae et sat similes *U. pulvinatae*. In collectione maiore verificandum, sinon valoris saltem varietatis sint dignae.

In Herbario Universitatis Harvard plantas identicas asservatas vidi ex insula St. Helena (in garden of Varneys, 23 Dec. 1957, *Arthur Loveridge*, substratum not indicated). Plantae evidenter terri- vel saxicolae.

USNEA LUTEOLA Mot.

Usnea luteola Mot. *in* Fragm. flor. geobot. **1** (2): 33. 1954.

UNION OF SOUTH AFRICA: Cape Province, Knysna District, Deepwalls Forest Reserve, north of Knysna, 5 Dec. 1949, *Maas Geesteranus 6694, 6696* [*U. rubescens* immixta], *6697*, on *Ocotea bullata* in clearing in tall forest, c. 500 m alt. (L).

Plantae e Knysna pro parte identicae cum typo e Madagascar, pro parte paulo ab eo diversae thallo rigidiore, ramis subtilius papillatis.

Usnea aristata Mot., *nova spec.*

Thallus ca. 7 cm longus et 12 cm latus, saepius distincte minor, pallide fusco-stramineus, ad partes apicales paullulum pallidior, sat distincte, imprimis ad ramos tenuiores, fere subpellucidus, nitidulus, mollis, flaccidus, subpendulus vel patente expansus, in tota longitudine crebre, plerumque dichotomice, rarius submonopodialiter ramosus, axillis inter ramos latis, rectis vel subrectis, parte basali attenuata, arcte constricta, concolore substratu affixus, statim supra basin ramificans. Rami parte suprabasali usque ad 3 mm crassi, mox sensim attenuati et ad apices sat abrupte subulato-attenuati, irregulariter, passim subsigmoideo-curvati, ad ramificationes et passim etiam alibi articulato-constricti vel fere typice articulati, medulla saepius e fracturis evadente, distincte inflatuli, crassiores saepius irregulariter foveolati indistincteque subtiliter subpapillati, tenuiores laeves, vulgo vero crebrius vel rarius tuberositatibus albidis, ecorticatis, sat distincte prominentibus, oblongis, transversis et obliquis, parte adapicali ramorum in soralia transientibus notati, parte suprabasali ramulis lateralibus tenuibus, ramis primariis similibus, apice acutiusculis, maioribus sorediosis muniti, parte adapicali et vulgo etiam mediali eramulosi.

Apothecia ignota.

Soredia parte adapicali ramorum crassiorum et parte mediali et adapicali ramorum tenuiorum crebre disposita, tenuiter granulosa vel granuloso-farinosa, e soraliis protinus punctiformibus, postea dilatatis, farinosis, indistincte limitatis, saepius dein erosulis nascentia, cito decadentia.

S t r u c t u r a   a n a t o m i c a. — Cortex ca. 60 μ crassus, luteolus, maxime conglutinatus, ex hyphis ca. 12 μ crassis contextus. Medulla 110–180 μ crassa, laxa, ex hyphis fere strictis, ca. 4 μ crassis laevibus complecta. Axis ca. 130 μ crassus.

R e a c t i o n e s   c h i m i c a e. — Thallus et medulla K non reagens, Pd rubescens.

Typus: *Maas Geesteranus 11050* (L).

KENYA: N y a n z a   P r o v i n c e, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 11050* [typus], on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); Tinderet Forest Reserve 0°0′30″ N. 35°31′30″ E., 15 July 1949, *Maas Geesteranus 5556*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [*U. leprosa* immixta] (L).

U. aristata proxima est *U. ruwenzorianae*. Differt ab ea thallo multo maiore et ramis crassioribus, distincte saltem ad basin suam articulatis, nitidulis, colore fuscidulo et ramificatione densiore. Ab *U. undulata* soraliis farinosis soraliisque latioribus et ramulis lateralibus alio modo formatis diversa. A simili *U. pulverulenta* dispositione soralium, thallo multo maiore et toto habitu diversa. Maxime europaeam *U. glabratam* et *U. intextam* in memoriam revocat, est vero multo maior et sorediis diversa.

No. *5556* est forma paulo recedens a typo thallo fere non articulato, crebre ramulis lateralibus munito.

Sectio DENDRITICAE Mot.

Sectio *Dendriticae* Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 570. 1938.

USNEA SCUTATA Mot.

Usnea scutata Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 602. 1938.

KENYA: N y a n z a P r o v i n c e, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°5′ S. 35°27′ E., 14 June 1949, *Maas Geesteranus 13502*, on *Acacia lahai* at edge of forest, fairly sheltered, 2260 m alt. (L); Tinderet Forest Reserve, 0°6′10″ S. 35°22′30″ E., 1 July 1949, *Maas Geesteranus 11128*, on *Acacia lahai* at edge of forest, somewhat exposed, 2000 m alt. (L).

Plantae nonnullae cum typo identicae, aliae ad *U. perspinosam* accedentes.

USNEA SUBLEPROSA Mot.

Usnea subleprosa Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 605. 1938.

KENYA: N y a n z a P r o v i n c e, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus*, on tree at edge of forest, exposed, 2300 m alt. [*U. strigosellae*, No. *10984*, admixta]; Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. [*U. flavescenti*, No. *11054*, admixta].
UNION OF SOUTH AFRICA: T r a n s v a a l, between Sabie and Lijdenburg, Mt. Anderson, 27 Oct. 1949, *Maas Geesteranus*, on small tree in remnant of wood on slope, c. 2000 m alt. [*U. undulatae*, No. *11941*, admixta].

USNEA INTUMESCENS Mot.

Usnea intumescens Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 138. 1959.

KENYA: N y a n z a P r o v i n c e, District of Kisumu-Londiani, Londiani, 9 June 1949, *Maas Geesteranus 10986*, on tree at edge of forest, exposed, 2300 m alt. [verosimiliter] (L); Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 11049a* [*U. leprosa* et *U. rugosa* immixtae], *11065*, on low trees and shrubs, mainly *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L); Tinderet Forest Reserve, 0°0′30″ N. 35°31′30″ E., 15 July 1949, *Maas Geesteranus 5558*, on *Arundinaria alpina* at edge of forest, exposed, 2700 m alt. [*U. aequatoriana* immixta] (L); between Tinderet Forest Reserve and Equator, 0°0′37″ N. 35°32′ E., 28 July 1949, *Maas Geesteranus 11202*, on isolated *Lasiosiphon glaucus* near edge of bamboo grove, exposed, 3200 m alt. (L); Kericho District, South Western Mau Forest, Reserve, 0°36′30″ S. 35°18′20″ E., 13 Aug. 1949, *Maas Geesteranus 11282*, on tree at edge of forest bordering the Itare River, somewhat shaded, 1920 m alt. [*U. os-elephantis* immixta] (L).

Sectio L A E V I G A T A E Mot.

Sectio *Laevigatae* Mot., Lich. Gen. *Usnea* Stud. mon. **2**: 626. 1938.

USNEA ELEGANTISSIMA Mot.

Usnea elegantissima Mot. *in* Ann. Univ. M. Curie-Skłodowska (Sect. C) **11**: 148. 1959.

KENYA: N y a n z a P r o v i n c e, District of Kisumu-Londiani, Tinderet Forest Reserve, 0°6′30″ S. 35°29′ E., 20 June 1949, *Maas Geesteranus 13037*, on *Tarchonanthus* sp. at edge of forest, exposed, 2420 m alt. (L).